

(12) UK Patent Application (19) GB (11) 2 200 560 (13) A

(43) Application published 10 Aug 1988

(21) Application No 8802826

(22) Date of filing 8 Feb 1988

(30) Priority data

(31) 8702796

(32) 7 Feb 1987

(33) GB

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(51) INT CL

A63B 53/06 // 53/16

(52) Domestic classification (Edition J):

A6D 23A

(56) Documents cited

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US 3951413

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(58) Field of search

A6D

Selected US specifications from IPC sub-class
A63B

(54) Golf clubs

(57) A putter has a hollow handle (3), shaft 2 and head within which a movable mass, preferably comprising particles 13 of lead shot, is captive. The handle (3) may form a reservoir (12) into and from which particles can be transferred through a gating device (4, 8, 11), thereby enabling the balance of the putter to be adjusted. The head may have a sealed window 15 carrying a scale 16 to allow measurement of the weight of particles held in the hand.

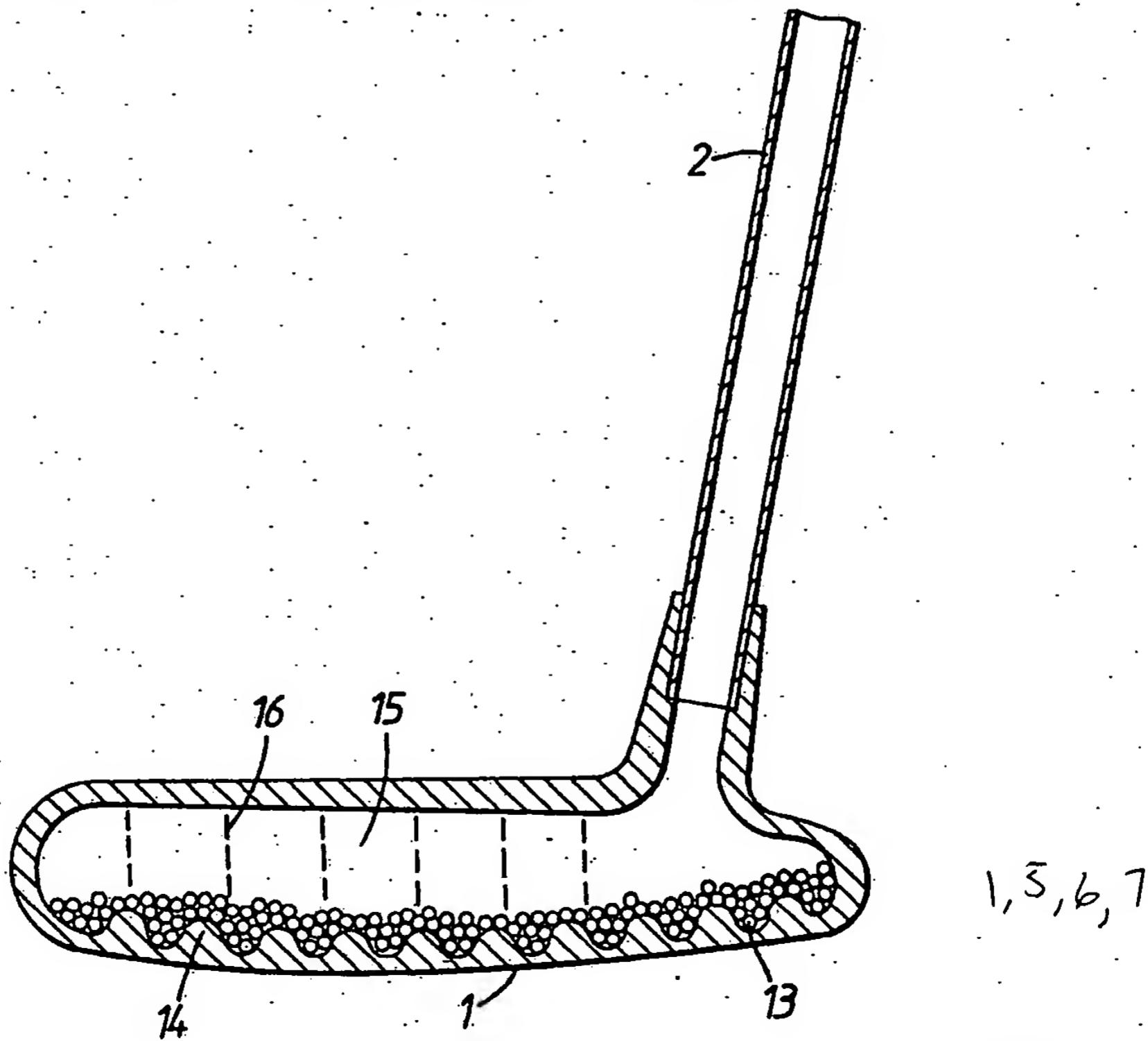


FIG. 2.

The drawing(s) originally filed was (were) informal and the print here reproduced is taken from a later filed formal copy.

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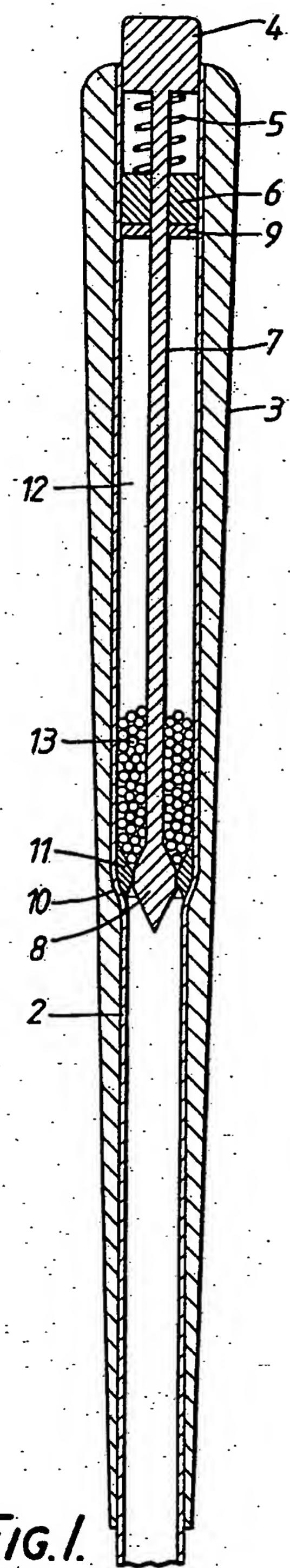


FIG. 1.

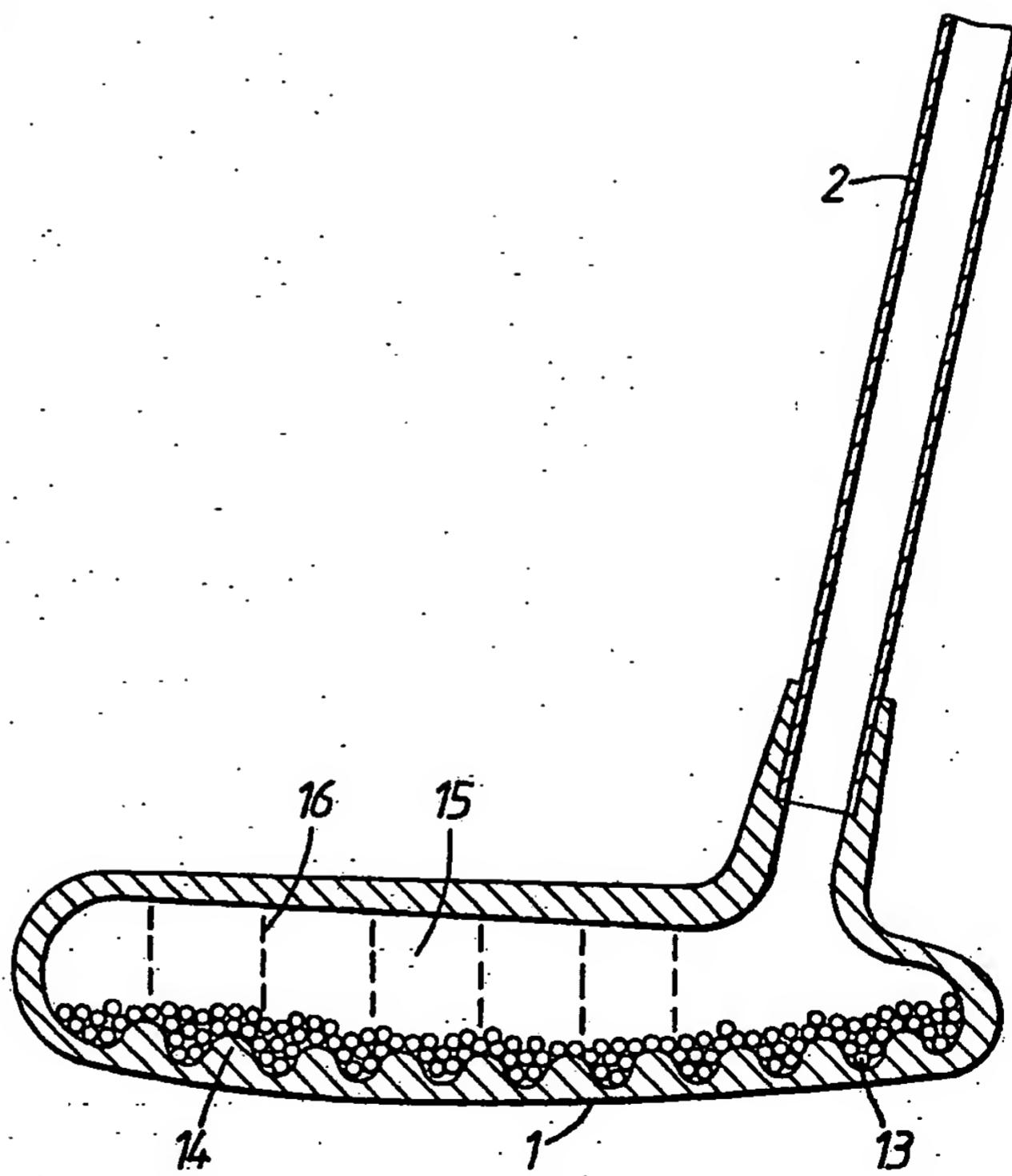


FIG. 2.

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- 1 -

"Improvements relating to Golf Clubs"

This invention relates to golf clubs, and putters in particular.

A golfer is only allowed to carry so many clubs on a round, and normally he will have just a single putter. It is perhaps the club to which most blame attaches when the player fails to have a good round and it is not uncommon for a player to wish he had an alternative club at some point. This may be purely psychological, but on occasions it may be quite valid, for example should the weather deteriorate and a heavier club be needed to be steadier in the wind. Also it may reasonably be preferred to have a heavier putter for the long putts and a lighter one for the short ones, where more delicacy of touch is required.

It is the aim of this invention to allow the player to choose his weight, while carrying just the single putter.

According to the present invention there is provided a golf putter in which a mass is transferable internally thereof along its length and retainable in

either of two zones.

One zone will normally be within the putter head, and the other within the handle.

Preferably, the mass comprises a plurality
5 of discrete particles, such as lead shot, which will "flow". This enables a selected proportion to be released into the head, while the remainder is retained in the handle. Thus there is virtually an infinite choice of balances, between the entire mass being in
10 the handle and the entire mass being in the head. The total weight of the putter will, of course, remain constant, but it is the weight at the head which the player primarily feels, and the heavier that is the greater the momentum imparted to the ball for a given
15 putting stroke.

The head will be hollow to receive the particles and preferably will have a non-smooth bed for them so that when they are evenly distributed they will remain so in the normal usage position and
20 movement of the putter. Thus, the bed might be corrugated or indented to contain discrete pockets for the particles.

Conveniently, the club will be adapted to show how the head and handle are relatively weighted. This
25 may be done by a window in the head with a scale marked

thereon. With the head tipped to a particular attitude, the particles will be visible through the window against the scale, from which can be seen immediately the corresponding weight.

5 The handle will be hollow to form a reservoir for the particles and conveniently there will be release means at the upper end to open and close the lower end. This may take the form of a spring-loaded plunger with an extension through the reservoir to
10 a plug at the lower end which seats and unseats as the plunger is operated. The plug seat is preferably a venturi-like restriction and the plug may be stream-lined to ease the flow of particles when it is unseated.

For a better understanding of the invention,
15 one embodiment will be described, by way of example, with reference to the accompanying drawing, in which:

Figure 1 is an axial section of a golf putter, and

20 Figure 2 is a longitudinal vertical section of the head of a putter with the lower end of the shaft.

The putter has a head 1 attached to the lower end of a hollow metal shaft 2 which is expanded at its upper end and covered with a grip 3 to form a handle.
25 Thus the putter is, to outward appearances, of quite

conventional form.

At the top of the shaft, normally protuberant beyond the end of the handle 3, there is a plunger 4 urged by a spring 5 into the projecting position.

- 5 The lower end of the spring 5 bears on a bush 6 force fitted within the upper end of the shaft 2. The plunger 4 is at the head of a stem 7 which extends down through the bush 6 to terminate in a plug 8. Just below the bush 6, the stem 7 has a collar 9 fixed
- 10 to it to provide a stop against further upward movement of the plunger assembly, beyond the closing position of the plug.

The plug 8 is normally at the point where the shaft widens out at a shoulder 10, and here there is

- 15 fitted an annular restriction 11 whose inner profile resembles a Venturi. The plug 8 is itself of a stream-lined arrow-like shape, and its maximum diameter matches the minimum inner diameter of the restrictor 11 to provide a complete closure when the plunger 4 is
- 20 in the fully projecting position.

The space between the member 11 and the collar 9 provides a reservoir 12 for small particles 13, such as lead shot. Other materials may be chosen, but it is desirable to have the particles small and dense and

- 25 with the ability to flow in a mass.

Referring to Figure 2, the head 1 is hollow and internally its base is formed with corrugations 14. Other "rough" formations can be used instead, the purpose being to provide a surface on which the particles 13 will not roll about and shift the balance once the putter is set in the normal attitude for a stroke.

The head has a rear window 15 with a scale 16 marked on it, this appearing as vertical lines in the putting position. But when adjusting the balance of the putter, the head is set with its toe lowermost so that all the particles fall to that end. They are clearly visible through the window 15 and their level against the scale 16 gives instantaneous readout of the weight, each scale line having an appropriate marking.

The figures show some particles in the handle and some in the head. Transfer from the handle to the head is done simply by holding the putter upright and depressing the plunger 4. It has been found that particles will not flow down in a steady stream until the reservoir is emptied; each actuation of the plunger tends to release a single dose of particles and they then tend to jam. This in fact is an advantage for obtaining fine adjustment of the weight in the head.

To increase that weight, the plunger is released and pressed again and the disturbance engenders another dose of particles.

- To return the particles to the handle
- 5 reservoir, the putter is inverted and again the plunger is worked to allow them back through the restrictor 11.

Although the window is shown at the rear, it could be on top of the head, or even underneath.

- An alternative to a visual check on the head
- 10 is to have markings on the shaft 2. The player would balance the shaft horizontally and the point of balance in relation to those markings would indicate the weight of the head.

- Instead of particulate material, liquid could
- 15 be used, although its instability, if not wholly filling the head or handle, could be a disadvantage. However, that could be largely overcome by baffles, or even by freezing if the golf cart or 'buggy' was suitably equipped.

CLAIMS

1. A golf putter in which a mass is transferable internally thereof along its length and is retainable in either of two zones.
2. A putter as claimed in Claim 1, wherein the mass comprises a plurality of discrete particles with a collective capability of flowing.
3. A putter as claimed in Claim 1 or 2, wherein one zone is within the putter head.
4. A putter as claimed in Claim 3 as appendent to Claim 2, wherein the head has a non-smooth bed for said particles whereby the latter, when distributed over that bed in the normal usage position of the putter, will be inhibited from shifting.
5. A putter as claimed in Claim 4, wherein said bed has corrugations or pockets to receive said particles.
6. A putter as claimed in any preceding claim, wherein the club has means for showing the relative weighting of said zones by the mass.
7. A putter as claimed in Claim 6 as appendent to Claim 3, wherein the head has a window through which

the portion of mass within the head is visible.

8. A putter as claimed in Claim 7 as appendent to Claim 2, wherein said window is marked with a scale whereby the portion of mass within the head can be
5 determined when the head is held at a predetermined attitude and the particles rest against the interior of said window.

9. A putter as claimed in any preceding claim, wherein another zone is within the putter handle.

10 10. A putter as claimed in Claim 9, wherein the handle forms a reservoir which has gate means at its lower end operable by release means at its upper end.

11. A putter as claimed in Claim 10, wherein
15 the release means is a spring-loaded plunger with an extension through the reservoir, and the gate means is a plug at the lower end of the extension which seats and unseats as the plunger is operated.

12. A putter as claimed in Claim 11, wherein
20 the seat for the plug is a venturi-like orifice.

13. A golf putter substantially as herein-before described with reference to the accompanying drawings.